

THE INVENTION THAT IS CLAIMED IS:

1. A method for applying a stable printed image onto a fabric substrate comprising the steps of:

providing a multi-layer ink transfer sheet comprising a backing layer, a detachable release layer positioned on said backing layer, and an ink receiving layer positioned on said release layer, said ink receiving layer comprising at least one quaternary ammonium salt;

providing an ink composition comprising at least one anionic coloring agent and an ink vehicle;

delivering said ink composition onto said ink receiving layer of said ink transfer sheet in order to form a printed image on said ink transfer sheet, said anionic coloring agent in said ink composition binding to said quaternary ammonium salt in order to fix said coloring agent to said ink transfer sheet;

placing said ink transfer sheet on said fabric substrate so that said ink receiving layer of said ink transfer sheet is in contact with said fabric substrate;

applying heat to said ink transfer sheet while said ink transfer sheet is positioned on said fabric substrate in an amount sufficient to cause said release layer and said ink receiving layer thereon to adhere to said fabric substrate; and

removing said backing layer from said ink transfer sheet in order to separate said release layer from said backing layer, said release layer and said ink receiving layer remaining adhered to said fabric substrate so that said printed image is transferred thereto.

2. The method of claim 1 wherein said quaternary ammonium salt is selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride.

3. The method of claim 1 wherein said applying of said heat to said ink transfer sheet comprises heating said ink transfer sheet to a temperature of about 150 - 200 °C while said ink transfer sheet is positioned on said fabric substrate.

4. The method of claim 1 wherein said ink transfer sheet comprises about 2 - 10 g of said quaternary ammonium salt per m<sup>2</sup> of said ink transfer sheet.

5. The method of claim 1 further comprising the step of applying pressure to said ink transfer sheet during said applying of said heat thereto in an amount sufficient to ensure complete contact between said ink transfer sheet and said fabric substrate.

6. The method of claim 5 wherein said pressure applied to said ink transfer sheet is about 0.05 - 2.0 lbs/in<sup>2</sup> of said transfer sheet.

7. A method for applying a stable printed image onto a fabric substrate comprising the steps of:

providing a multi-layer ink transfer sheet comprising a backing layer, a detachable release layer positioned on said backing layer, and an ink receiving layer positioned on said release layer, said ink receiving layer comprising at least one quaternary ammonium salt;

providing a thermal inkjet printing apparatus comprising at least one ink cartridge therein, said ink cartridge comprising a housing and a printhead, said printhead comprising ink expulsion means for delivering ink materials from said ink cartridge, said ink cartridge further comprising a supply of at least one ink composition within said housing, said supply of said ink composition being in fluid communication with said ink expulsion means of said printhead, said ink composition comprising at least one anionic coloring agent and an ink vehicle;

placing said ink transfer sheet within said thermal inkjet printing apparatus;

activating said ink expulsion means of said printhead in order to deliver said ink composition from said ink cartridge onto said ink receiving layer of said ink transfer sheet so that a printed image is formed on said ink transfer sheet, said anionic coloring agent in said ink composition binding to said quaternary ammonium salt in order to fix said coloring agent to said ink transfer sheet;

placing said ink transfer sheet on said fabric substrate so that said ink receiving layer of said ink transfer sheet is in contact with said fabric substrate;

applying heat to said ink transfer sheet while said ink transfer sheet is positioned on said fabric substrate in an amount sufficient to cause said release layer and said ink receiving layer thereon to adhere to said fabric substrate; and

removing said backing layer from said ink transfer sheet in order to separate said release layer from said backing layer, said release layer and said ink receiving layer remaining adhered to said fabric substrate so that said printed image is transferred thereto.

8. The method of claim 7 wherein said quaternary ammonium salt is selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride.

9. The method of claim 7 wherein said applying of said heat to said ink transfer sheet comprises heating said ink transfer sheet to a temperature of about 150 - 200 °C while said ink transfer sheet is positioned on said fabric substrate.

10. The method of claim 7 wherein said ink transfer sheet comprises about 2 - 10 g of said quaternary ammonium

salt per m<sup>2</sup> of said ink transfer sheet.

11. A method for applying a stable printed image onto a fabric substrate comprising the steps of:

providing a multi-layer ink transfer sheet comprising a backing layer, a detachable release layer positioned on said backing layer, and an ink receiving layer positioned on said release layer, said ink receiving layer comprising at least one quaternary ammonium salt selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride, said ink transfer sheet comprising about 2 - 10 g of said quaternary ammonium salt per m<sup>2</sup> of said ink transfer sheet;

providing a thermal inkjet printing apparatus comprising at least one ink cartridge therein, said ink cartridge comprising a housing and a printhead, said printhead comprising ink expulsion means for delivering ink materials from said ink cartridge, said ink cartridge further comprising a supply of at least one ink composition within said housing, said supply of said ink composition being in fluid communication with said ink expulsion means of said printhead, said ink composition comprising at least one anionic coloring agent and an ink vehicle;

placing said ink transfer sheet within said thermal inkjet printing apparatus;

activating said ink expulsion means of said printhead in order to deliver said ink composition from said ink cartridge onto said ink receiving layer of said ink transfer sheet so that a printed image is formed on said ink transfer sheet, said anionic coloring agent in said ink composition binding to said quaternary ammonium salt in order to fix said coloring agent to said ink transfer sheet;

placing said ink transfer sheet on said fabric substrate so that said ink receiving layer of said ink transfer sheet is in contact with said fabric substrate;

heating said ink transfer sheet to a temperature of about

150 - 200 °C while said ink transfer sheet is positioned on said fabric substrate in order to cause said release layer and said ink receiving layer thereon to adhere to said fabric substrate; and

removing said backing layer from said ink transfer sheet in order to separate said release layer from said backing layer, said release layer and said ink receiving layer remaining adhered to said fabric substrate so that said printed image is transferred thereto.

12. A multi-layer ink transfer sheet for receiving ink compositions thereon and subsequently transferring said ink compositions to a fabric substrate comprising:

a backing layer;  
a detachable release layer positioned on said backing layer; and

an ink receiving layer positioned on said detachable release layer, said ink receiving layer comprising at least one quaternary ammonium salt, said quaternary ammonium salt binding to any anionic coloring agents within said ink compositions applied to said ink transfer sheet in order to produce a stable printed image.

13. The ink transfer sheet of claim 12 wherein said quaternary ammonium salt is selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride.

14. The ink transfer sheet of claim 12 wherein said ink transfer sheet comprises about 2 - 10 g of said quaternary ammonium salt per m<sup>2</sup> of said ink transfer sheet.

15. A multi-layer ink transfer sheet for receiving ink compositions thereon and subsequently transferring said ink compositions to a fabric substrate comprising:

a backing layer;

a detachable release layer positioned on said backing layer; and

an ink receiving layer positioned on said detachable release layer, said ink receiving layer comprising at least one quaternary ammonium salt selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride, said ink transfer sheet comprising about 2 - 10 g of said quaternary ammonium salt per m<sup>2</sup> of said ink transfer sheet, said quaternary ammonium salt binding to any anionic coloring agents within said ink compositions applied to said ink transfer sheet in order to produce a stable printed image.

16. A method for producing a multi-layer ink transfer sheet for receiving ink compositions thereon and subsequently transferring said ink compositions to a fabric substrate comprising:

providing a transfer sheet structure comprising a backing layer, a detachable release layer positioned on said backing layer, and an ink receiving layer positioned on said release layer, said ink receiving layer comprising an upper surface; and

delivering at least one quaternary ammonium salt onto said upper surface of said ink receiving layer of said transfer sheet structure to produce a completed ink transfer sheet, said quaternary ammonium salt binding to any anionic coloring agents within said ink compositions applied to said ink transfer sheet in order to produce a stable printed image.

17. The method of claim 16 wherein said quaternary ammonium salt is selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride.

18. The method of claim 16 wherein said ink transfer

sheet comprises about 2 - 10 g of said quaternary ammonium salt per m<sup>2</sup> of said ink transfer sheet.

19. A method for producing a multi-layer ink transfer sheet for receiving ink compositions thereon and subsequently transferring said ink compositions to a fabric substrate comprising:

providing a transfer sheet structure comprising a backing layer, a detachable release layer positioned on said backing layer and an ink receiving layer positioned on said release layer, said ink receiving layer comprising an upper surface; and

delivering at least one quaternary ammonium salt selected from the group consisting of tricaprylyl methyl ammonium chloride, ditallow dimethyl ammonium chloride, tetraoctyl ammonium bromide, and tridodecyl ammonium chloride onto said upper surface of said ink receiving layer of said transfer sheet structure to produce a completed ink transfer sheet, said ink transfer sheet comprising about 2 - 10 g of said quaternary ammonium salt per m<sup>2</sup> of said ink transfer sheet, said quaternary ammonium salt binding to any anionic coloring agents within said ink compositions applied to said ink transfer sheet in order to produce a stable printed image.